Appl. No. 10/691,757
Amdt. dated June 21, 2005
Reply to Office Action of March 23, 2005

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1.   (Currently Amended) A data storage device, comprising:

a write head for writing data onto a magnetic disk;

a write circuit [[for generating]] <u>configured to generate</u> the write current to be supplied to said write head by using a supplied positive voltage and a supplied negative voltage;

a converter [[for generating]] <u>configured to generate</u> said negative voltage to be supplied to said write circuit from said positive voltage; and

a <u>programmable</u> controller [[for]] <u>configured to</u> variably [[setting]] <u>set</u> the magnitude of said negative voltage <u>based on information input to said controller</u>.

2.   (Original) The data storage device according to claim 1, wherein said controller sets the magnitude of said negative voltage in accordance with an ambient temperature for said magnetic disk.

3.   (Original) The data storage device according to claim 2, wherein said controller sets a large absolute value for said negative voltage if said ambient temperature is low, and sets a small absolute value for said negative voltage if said ambient temperature is high.

4.   (Original) The data storage device according to claim 1, wherein said controller sets the magnitude of said negative voltage in accordance with the magnitude of said positive voltage.

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5.   (Original) The data storage device according to claim 4, wherein said controller sets a large absolute value for said negative voltage if said positive voltage is low, and sets a small absolute value for said negative voltage if said positive voltage is high.

6.   (Original) The data storage device according to claim 1, wherein said controller changes the magnitude of said negative voltage when said write head is not performing a write operation.

7.   (Original) The data storage device according to claim 1, wherein said write circuit ensures that the write current value used for a specified period after the start of a write is greater than the write current value used after the elapse of the specified period.

8.   (Original) The data storage device according to claim 1, wherein said write circuit is of a voltage-driven type that directly provides voltage drive for said write head.

9.   (Original) The data storage device according to claim 1, wherein said converter comprises a register for storing a voltage command from said controller and a voltage converter for converting the voltage in accordance with the value stored in said register.

10.   (Currently Amended) A data write method, comprising:

[[a first step of]] receiving a seek command or a write command for a read/write head over a magnetic disk;

[[a second step of]] setting by a controller the magnitude of [[the]] a negative voltage to be supplied to a drive circuit for said read/write head in accordance with a specified condition based on information input to the controller, the negative voltage being generated from a positive voltage supplied to the drive circuit; and

[[a third step of]] causing said read/write head over said magnetic disk to perform a seek operation or a write operation.

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11.   (Original) The data write method according to claim 10, wherein said specified condition is the ambient temperature for said magnetic disk.

12.   (Original) The data write method according to claim 11, wherein said second step sets a large absolute value for said negative voltage if said ambient temperature is low and sets a small absolute value for said negative voltage if said ambient temperature is high.

13.   (Currently Amended) The data write method according to claim 10, wherein said specified condition is the magnitude of said supplied [[said]] positive voltage.

14.   (Original) The data write method according to claim 13, wherein said second step sets a large absolute value for said negative voltage if said positive voltage is low and sets a small absolute value for said negative voltage if said positive voltage is high.

15.   (Currently Amended) A computer-readable storage medium having a program enabling a computer to exercise a first function which comprises:
        code for receiving a seek command or a write command for a read/write head over a magnetic disk;
        [[a second function]] code for setting, in accordance with a specified condition based on information input to a controller, the magnitude of the negative voltage generated from a supplied positive voltage, the negative voltage to be supplied to a write circuit which drives said read/write head; and
        [[a third function]] code for causing said read/write head over said magnetic disk to perform a seek operation or a write operation.

16.   (New) The data storage device of claim 1, wherein said controller uses stored voltage command information in a register to variably set the magnitude of said negative voltage.

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17.   (New) The data storage device of claim 16, wherein the magnitude of said negative voltage is set to a predefined voltage defined by said stored voltage command information.

18.   (New) The data storage device of claim 1, wherein said controller sets the magnitude of said negative voltage in accordance with the average value of said positive voltage.

19.   (New) The method of claim 10, further comprising, prior to causing the read/write head to perform the seek operation or the write operation:

storing values of previous positive and negative voltages;

measuring the value of a supplied positive voltage; and

computing the difference between the value of said supplied positive voltage and the value of said previous positive voltage;

wherein said specified condition used in setting the magnitude of the negative voltage is the computed difference.

20.   (New) The method of claim 19, further comprising waiting for a preset period of time to allow the voltage to stabilize after setting the magnitude of the negative voltage before causing the read/write head to perform the seek operation or the write operation.